

APPENDIX B – SECTION 7 CONSULTATION AND BIOLOGICAL ASSESSMENT

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United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Vernal Field Office

170 South 500 East

Vernal, UT 84078

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<http://www.blm.gov/utah/vernal/index.html>

October 27, 2005

IN REPLY REFER TO:

1680

(UT-082)

Memorandum

To: Utah Field Supervisor, Ecological Services, U.S. Fish & Wildlife Service, Salt Lake City Utah

From: Field Manager *William Hinger*

Subject: Initiation of Formal Consultation on the Resource Development Group Natural Gas Project Environmental Impact Statement UT-080-2003-0300V

Attached is the final Biological Assessment (BA) for the Resource Development Group Natural Gas Project Environmental Impact Statement (RDG EIS). Pursuant to Section 7 of the Endangered Species Act of 1973, and in conformance with 50 CFR 402.12, the Vernal Field Office is initiating formal consultation with the Service and requesting concurrence with the determinations made for the threatened, endangered and candidate species evaluated in the Biological Assessment. The draft RDG EIS was sent to your office October 12, 2004, for review and comment. Informal consultation, through meetings and phone calls, has been conducted between this office and the Service since the initiation of this project.

The BLM has chosen Alternative 2 – Additional Wildlife Considerations as the Preferred Alternative for the proposed RDG EIS. Under this alternative, 423 wells would be drilled, but may be affected by relocation of well pads, roads, or ancillary facilities within the lease, restricted development during certain periods of the year, or subject to special construction and operational methods to reduce potential environmental impacts as described in this BA.

Since the initiation of this project and the development of the draft EIS, *Penstemon grahamii*, which is currently is candidate species, is in the process being listed by your office as threatened. For purposes of this BA we request that *Penstemon grahamii* be consulted on as being listed as threatened to eliminate the need to re-consult on this project at a later date.

We request concurrence on the determinations summarized below for the following species:

- Bald Eagle (*Haliaeetus leucocephalus*) – T

Because wintering bald eagles feed on carrion, which often takes the form of road kill, birds feeding along roadsides have the potential to be involved in vehicle collisions. Additionally, since bald eagles tend to avoid areas of intense human activity during all times of year, development activities could temporarily displace eagles from winter foraging areas. However, because bald eagles are only known sporadically in the project area, these effects are insignificant. The Preferred alternative **may affect, not likely to adversely affect** the bald eagle.

- Colorado Pikeminnow (*Prychocheilus lucius*) – E

Project proponents are proposing to use up to 5 acre-feet of surface water per year from Evacuation Creek for drilling purposes. This withdrawal from Evacuation Creek would result in a new water depletion from the upper Colorado River Basin and therefore **may affect, is likely to adversely affect** the Colorado pikeminnow by virtue of this depletion.

- Humpback Chub (*Gila cypha*) – E

Project proponents are proposing to use up to 5 acre-feet of surface water per year from Evacuation Creek for drilling purposes. This withdrawal from Evacuation Creek would result in a new water depletion from the upper Colorado River Basin and therefore **may affect, is likely to adversely affect** the Humpback chub by virtue of this depletion.

- Bonytail (*Gila elegans*) – E

Project proponents are proposing to use up to 5 acre-feet of surface water per year from Evacuation Creek for drilling purposes. This withdrawal from Evacuation Creek would result in a new water depletion from the upper Colorado River Basin and therefore **may affect, is likely to adversely affect** the bonytail by virtue of this depletion.

- Razorback Sucker (*Xyrauchen texanus*) – E

Project proponents are proposing to use up to 5 acre-feet of surface water per year from Evacuation Creek for drilling purposes. This withdrawal from Evacuation Creek would result in a new water depletion from the upper Colorado River Basin and therefore **may affect, is likely to adversely affect** the razorback sucker by virtue of this depletion.

- Graham beardtongue (*Penstemon grahamii*) – C/T

Plant surveys will be conducted for this species prior to implementation of specific well construction projects. Populations and suitable habitat will be avoided, but the surface disturbance associated with the Preferred Alternative may indirectly affect potentially suitable habitat and individual plants of this species. Initiation of Operators committed measures, mitigation measures and best management practices, will lessen the potential for erosion, loss of habitat, noxious weed and undesirable plant establishment, and increased sedimentation in suitable habitat. The implementation of the Preferred Alternative with Operators committed measures and mitigation measures **may affect but not likely to adversely affect Graham's beardtongue or its habitat.**

- White River beardtongue (*P. scariosus* var. *albifluvis*) – C

Plant surveys will be conducted for this species prior to implementation of specific well construction projects. Populations and suitable habitat will be avoided, but the surface disturbance associated with the Preferred Alternative may indirectly affect potentially suitable

habitat and individual plants of this species. Initiation of Operators committed measures, mitigation measures and best management practices, will lessen the potential for erosion, loss of habitat, noxious weed and undesirable plant establishment, and increased sedimentation in suitable habitat. The implementation of the Preferred Alternative with Operators committed measures and mitigation measures, **may impact, but is not likely to contribute to the need for the White River beardtongue to become listed.**

- Western Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*) – C

There is limited potentially suitable nesting habitat for this species along Bitter Creek, but no known individuals. No development activities would occur along Bitter Creek; therefore, any potential effects on the species would be indirect. The Preferred alternative **may affect, but is not likely adversely affect the western yellow-billed cuckoo or its habitat** because of discountable, indirect effects.

Should you have questions, or require additional information, please contact Robert Specht, Natural Resource Specialist, at 435-781-4436.

Thank you for your assistance.

Attachment: Biological Assessment for the RDG EIS

Cc: State Director (U-933) w/att

Bcc: Central Files
Reading
RDG Project File

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JAN-11-2006 WED 01:27 PM BLM VERNAL F.O.

FAX NO. 435 781 4410

P. 02/04



United States Department of the Interior
FISH AND WILDLIFE SERVICE

UTAH FIELD OFFICE
2369 WEST OXTON CIRCLE, SUITE 50
WEST VALLEY CITY, UTAH 84119

Bill S. *copy*
Stephane *✓*
Bob Spacht *copy*

In Reply Refer To
FWS/R6
ES/UT
6-UT-06-F-006
F-0031

January 4, 2006

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JAN 8 6 2006

BLM VERNAL, UTAH

Memorandum

To: Field Manager, Vernal Field Office, Bureau of Land Management, Vernal, Utah

From: Utah Field Supervisor, Ecological Services, U.S. Fish and Wildlife Service, West Valley City, Utah

Subject: Final Formal Section 7 Consultation for Resource Development Group Natural Gas Project.

Proposed Action:

The U.S. Fish and Wildlife Service (Service) has reviewed the Biological Assessment for the Resource Development Group Natural Gas Project Environmental Impact Statement (RDG EIS) and your letter of October 27, 2005. The proposed project of 79,914 acres is situated in the East Tavaputs Plateau portion of the Uinta basin, south of the White River. The project would:

- Drill 423 wells, most on a 40-acre pattern, but some on patterns up to 160 acres or larger;
- Install a 350-horsepower compressor; and
- Construct access roads, support facilities, and a transmission pipeline.

Informal Consultation:

Based on information provided in your biological assessment of October 27, 2005 and your e-mails of December 16, 2005, we concur with your "may affect, but not likely to adversely affect" determination for the bald eagle. Critical habitat has not been designated for the bald eagle. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

Water Depletion:

Colorado River Endangered Fish Species: Colorado Pikeminnow, razorback sucker, bonytail chub, and humpback chub:

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FAX NO. 435 781 4410

P. 03/04

In accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.), and the Interagency Cooperation Regulations (50 CFR 402), the Service reviewed your correspondence regarding the impacts of the project on endangered Colorado River fishes. The proposed action will cause an average annual depletion of 5 acre-feet to the Upper Colorado River Basin.

A Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (Recovery Program) was initiated on January 22, 1988. The Recovery Program is considered the reasonable and prudent alternative to avoid jeopardy to the endangered fishes by depletions from the Upper Colorado River Basin.

In order to further define and clarify the process in the Recovery Program, a section 7 agreement was implemented on October 15, 1993, by the Recovery Program participants. Incorporated into this agreement is a Recovery Implementation Program Recovery Action Plan (Plan) which identifies actions required to recover the endangered fishes in the most expeditious manner.

Included in the Recovery Program is the requirement that water depletion fees would be paid to help support the Recovery Program. On March 9, 1995, the Service issued an intra-Service biological opinion determining that the depletion fee for depletions of 100 acre-feet or less are no longer required because the Recovery Program has made sufficient progress to be the reasonable and prudent alternative to avoid the likelihood of jeopardy to the endangered fishes and to avoid destruction of adverse modification of their critical habitat by depletions of 100 acre-feet or less. Therefore, the depletion fee for this project is waived.

The Vernal BLM should condition their permit to retain jurisdiction in the event that the Recovery Program is unable to implement the Plan in a timely manner. In that case, as long as the lead Federal Agency has discretionary authority over the project, reinitiation of section 7 consultation may be required so that a new reasonable and prudent alternative can be developed by the Service.

The Vernal BLM must also report actual annual water depletion from this project to this office at the end of each fiscal year. The Recovery Program maintains water depletion records to ensure that recovery goals are not hindered by excessive depletions.

Candidate Species:

Graham beardtongue: The species is found on semi-barren knolls, ridges, and steep slopes. Individuals require a mix of fragmented white shale and silty clay soils of the Green river formation. The range of the Graham beardtongue in and around the Uinta Basin comprises an arc of small, disjunct populations.

This species is known to occur in the Asphalt wash and Bitter Creek portion of the project area. Three populations occur within the project area, two on BLM and one on State lands.

White River beardtongue: The species is found on semi-barren areas on white (infrequently red) soils that are xeric, shallow, fine-textured, and usually mixed with fragmented shale.

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FAX NO. 435 781 4410

P. 04/04

The species' range covers approximately 20 miles. Soils associated with this species occur within the Green River formation.

The BLM and the proponent have committed to the following conservation measures for both species:

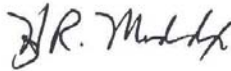
- Plant surveys will be conducted prior to implementation of specific well, road, and pipeline construction;
- Populations and suitable habitat will be avoided;
- Weeds will be controlled and seeding of disturbed areas will be done with native plant species; and
- Where construction of roads and pads will be upslope of habitat, best management practices would include buffers for plant habitat and engineering to eliminate concentrated water flows and increased sediment into habitat

We appreciate the conservation measures for Graham beartongue and White River beartongue, and recommend you also commit to the OHV monitoring and mitigation measures (signage and closing access to sensitive areas) you cited (page 20 of the BA) as being used successfully in the Inland Oil and Gas field.

Candidate species have no legal protection under the ESA. Candidate species are those species for which we have on file sufficient information to support issuance of a proposed rule to list under the ESA. Identification of candidate species can assist environmental planning efforts by providing advance notice of potential listings, allowing resource managers to alleviate threats and, thereby, possibly remove the need to list species as endangered or threatened. Even if we subsequently list this candidate species, the early notice provided here could result in fewer restrictions on activities by prompting candidate conservation measures to alleviate threats to this species.

We appreciate your interest in conserving endangered species. If we can be of further assistance, or if you have any questions, please feel free to contact Diana Whittington of our office at (801) 975-3330 extension 128.

Sincerely,



Henry R. Maddux
Utah Field Supervisor

cc: USFWS – Upper Colorado River Endangered Fish Recovery Program (Attention: Angela Kantola), P.O. Box 25486, DFC, Lakewood, CO 80225
BLM State Office – Attention: Ron Bolander
UDWR - Vernal

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United States Department of the Interior

BUREAU OF LAND MANAGEMENT

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Vernal, UT 84078
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IN REPLY REFER TO:
1680
(UT-082)

April 11, 2006

Memorandum

To: Utah Supervisor, Utah Field Office, Ecological Services,
U.S. Fish & Wildlife Services, Salt Lake City, Utah

From: Field Manager, Bureau of Land Management, Vernal, Utah *William Strong*

Subject: Re-initiation of Formal Consultation on the Resource Development Group
(RDG) Natural Gas Project Environmental Impact Statement U-080-2003-
300V. (Biological Opinion Number #6-UT-06-F-006, 1/4/06)

Pursuant with Section 7 of the Endangered Species Act of 1973, and in conformance with 50 CFR Part 402.14, we are requesting re-initiation of formal consultation on the RDG Natural Gas Project Environmental Impact Statement (EIS).

Formal consultation took place between the Service and the BLM regarding the impacts of the Proposed Action to threatened and endangered species (Bald eagle, Colorado pikeminnow, Humpback chub, Bonytail, Razorback sucker, Graham beardtongue, White-river beardtongue and Western Yellow-billed Cuckoo). The RDG EIS included an analysis of potential impacts to these species. The Mexican Spotted Owl (MSO) was not originally included in the initial formal consultation or in the Biological Assessment (BA); however, based on new information, potential affects to MSO will be analyzed in the re-initiation of formal consultation, and the updated BA. Thus, we are requesting re-initiation of formal consultation on the RDG Natural Gas Project EIS.

Mexican Spotted Owl

The Final Assessment of Potential Mexican Spotted Owl Nesting Habitat on BLM-Administered Lands in Northeastern Utah was released to the public in September of 2005. The purpose of this assessment was to ground-truth those areas identified by the 1997 and 2000 Spotskey-Willey Models as containing potential MSO nesting habitat. The result of these ground-truthing surveys identified several areas of good and fair habitat within canyons of the RDG EIS.

The MSO was listed under the Endangered Species Act as “threatened” on April 15, 1993. The owl is distributed mostly in southern Utah and Colorado, down to Arizona, New Mexico, and West Texas to the mountain of central Mexico. In both 1995 and 1996, a lone MSO was detected to the northeast of BLM, VFO-administered lands in a south-trending canyon tributary to the Yampa River, in the Outlaw Park region of Dinosaur National Park in extreme northwest Colorado. In addition, nesting pairs of MSO have been detected along the Green River in Desolation Canyon, Utah, approximately 30 miles southwest of the area ground-truthed by the 2005 MSO survey. Although no confirmed sightings of MSOs have been reported in the VFO management area boundary, it can be concluded that owls could utilize suitable habitat within the area.

Minimization Measures

According to the MSO Survey Protocol, developed by the FWS in 2003, all habitat modifying or potentially disruptive activities in areas of potential habitat designated as excellent or better (including a buffer of 0.5 miles around these habitat designations) will be required have two (breeding) seasons of surveys conducted on them prior to approval of surface disturbing activities. Approval of activities will only be allowed if no owls were detected during the two seasons of surveys. All surveys will be conducted according to the FWS survey protocol.

Effects of the Action on MSO

Direct effects on Mexican Spotted Owls include collisions with cars, trucks and powerlines, as well as the effects of noise and destruction of foraging habitats. The Final Assessment of Potential Mexican Spotted Owl Nesting Habitat on BLM-Administered Lands in Northeastern Utah has identified several areas of good and fair potential nesting habitat in several canyons of the project area (i.e., Asphalt Wash, Atchee Wash and Saddletree Draw). Oil and gas development could result in increased habitat fragmentation, habitat deterioration, and disruption of behavior due to the construction and operation of roads, pipelines, well pads, compressor stations, powerlines, and fences. The interrelated effects of the Preferred alternative and the numerous existing and proposed oil and gas developments in the Diamond Mountain and Book Cliffs Planning Areas could lead to a reduction in prey availability because of a major increase in road densities and the installation of oil and gas drilling infrastructure, which would compound the indirect effects discussed above.

Determination

Based on the minimization measures, the BLM has found that project activities have a **“may affect, not likely to adversely affect”** determination for MSO. If, during the life of the project, MSOs are found within the project area, section 7 consultation will need to be re-initiated.

We request your concurrence on our determination for the project so as to conclude this re-initiation of formal consultation. If you have any questions or need additional information, please contact Amy Torres, Wildlife Biologist, at (435) 781-4481.

Attachment: Revised Biological Assessment for the RDG EIS

cc: State Director, Utah, U-933 (w/att)

| Division AFMS | Initial | Assigned |
|---------------------------------|------------|-------------------------------------|
| Field Manager | <i>gca</i> | |
| Planner | | |
| NEPA | | |
| Ranger | | |
| Bus. Practices | | |
| Renewables | | <input checked="" type="checkbox"/> |
| Operations | | |
| BUREAU OF LAND MANAGEMENT, UTAH | | |
| APR 25 '06 | | |
| MINERALS | | |
| FIRE | | |
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|---|
| <input type="checkbox"/> Concur No Effect |
| <input checked="" type="checkbox"/> Concur Not Likely to Adversely Affect |
| <input type="checkbox"/> No Comment |
| <i>[Signature]</i> |
| U.S.F.W.S. – Utah Field Supervisor |
| Date <i>4/21/06</i> |

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**FINAL
BIOLOGICAL ASSESSMENT
FOR THE
RESOURCE DEVELOPMENT GROUP
UINTA BASIN NATURAL GAS PROJECT**

Bureau of Land Management
Vernal Field Office
Uintah County, Utah

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1.0 INTRODUCTION

The BLM has chosen Alternative 2 – Additional Wildlife Considerations as the Preferred Alternative for the proposed Resource Development Group (RDG) Uinta Basin Natural Gas Project. The purpose of this biological assessment is to determine to what extent the Preferred Alternative may affect any of the threatened, endangered, candidate, and sensitive or other species of concern listed below. Under this alternative, 423 wells would be drilled, but may be affected by relocation of well pads, roads, or ancillary facilities within the lease, restricted development during certain periods of the year, or subject to special construction and operational methods to reduce potential environmental impacts. See Map 1 for the general location of the project area and Map 2-1 for a depiction of this alternative. The additional environmental protection measures included in this Alternative are listed below.

This biological assessment is prepared in accordance with legal requirements set forth under Section 7 of the Endangered Species Act of 1973, as amended, (ESA; 16 U.S.C. §1536 (c)) and follows the standards established in Bureau of Land Management (BLM) guidance for the National Environmental Policy Act (NEPA) and the ESA.

The U.S. Fish and Wildlife Service (FWS) have provided a county-based list of federally listed threatened, endangered, and proposed species having potential habitat in Uintah County where the project area occurs. The BLM botanist and wildlife biologists evaluated habitat requirements of special status species utilizing vegetation maps, geology maps, soil maps, species occurrence maps and databases, species habitat models, survey reports and knowledge of the area to identify what species occur or have potential to occur in the project area (Table 1.1). The U.S. FWS concurred, under an informal consultation e-mail, with the BLM determination of the species present on 7/14/2005. The following species occur or have potential to occur in the project area.

1.1 THREATENED AND ENDANGERED SPECIES

- Bald eagle (*Haliaeetus leucocephalus*) – T
- Colorado pikeminnow (*Ptychocheilus lucius*) – E
- Humpback chub (*Gila cypha*) – E
- Bonytail (*Gila elegans*) – E
- Razorback sucker (*Xyrauchen texanus*) – E

1.2 FEDERAL CANDIDATE SPECIES, BLM SENSITIVE SPECIES

- Graham beardtongue (*Penstemon grahamii*) – C
- White River beardtongue (*P. scariosus* var. *albifluvis*) – C
- Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) – C

Table 1.1 Federally Listed and BLM Special Status Species

| Species | Status | Habitat | Potential for and/or Occurrence |
|--|--------|---|---|
| PLANTS | | | |
| Clay reed-mustard (<i>Schoenocrambe argillacea</i>) | T | Book Cliffs on upper Uinta and lower Green River Shale Formations in mixed desert shrub of Indian ricegrass and pygmy sagebrush, 5,000-5,650 feet. | None - No suitable habitat. Associated soils do not occur in the analysis area. Project Area is outside the suitable habitat range. |
| Shrubby reed-mustard (<i>Schoenocrambe suffrutescens</i>) | E | Green River Shale Formation of calcareous shales in pygmy sagebrush, mountain mahogany, juniper, and mixed desert shrub communities, 5,400-6,000 feet. | None - No suitable habitat. Associated soils do not occur in the analysis area. Project Area is outside the suitable habitat range. |
| Uinta Basin hookless cactus (<i>Sclerocactus glaucus</i>) | T | Gravelly hills and terraces on Quaternary and Tertiary alluvium soils in cold desert shrub communities, 4,700-6,000 feet. | None - No suitable habitat. Formations and associated soils do not occur in the Project Area. Predominance of sandy soils. |
| Ute ladies'-tresses (<i>Spiranthes diluvialis</i>) | T | Streams, bogs, and open seepages in cottonwood, saltcedar, willow, and pinyon-juniper communities, 4,400-6,810 feet. | None - Soils and associated riparian areas within the Project Area are not suitable habitat. |
| Graham beardtongue (<i>Penstemon grahamii</i>) | C | Semi-barren knolls, ridges, and steep slopes. Requires a mix of fragmented white shale and silty clay soils of the Green River Formation. It is typically associated with sparsely vegetated communities of pinyon-juniper, desert shrub, and Salina wild rye, at elevations ranging from 4,691 feet to 6,758 feet. | Occurs - Populations found in southeast portion of Project Area in Asphalt Wash and Bitter Creek areas. |
| Horseshoe milk-vetch (<i>Astragalus equisolensis</i>) | C | Grows on river terrace sands and gravels overlying the Duchesne River Formation, and on sandy-silty soils weathered directly from it. Associated with mixed desert and salt desert shrub communities, at elevations ranging from 4,691 feet to 5,167 feet. | None - No suitable habitat. Formations and associated soils do not occur in the Project Area. |
| White River beardtongue (<i>Penstemon scariosus</i> var. <i>albifluvis</i>) | C | Semi-barren areas on white (infrequently red) soils that are xeric, shallow, fine-textured, and usually mixed with fragmented shale. Associated with pinyon-juniper/desert shrub and mixed desert shrub communities, at elevations ranging from 5,000 feet to 6,679 feet. | Potential - Suitable habitat, formations and associated soils occur in the Project Area. |

Table 1.1 Federally Listed and BLM Special Status Species

| Species | Status | Habitat | Potential for and/or Occurrence |
|---|--------|--|--|
| WILDLIFE | | | |
| Bald eagle <i>Haliaeetus leucocephalus</i> | T | Important habitat component for wintering eagles includes the presence of suitable trees for diurnal perching and nocturnal roosting. | Occurs - Bald Eagle presence in the Project Area would be fairly common during the winter months (November - March) and would include foraging by migrants and wintering individuals. |
| Mexican spotted owl <i>Strix occidentalis lucida</i> | T | The Mexican Spotted Owl (MSO) in Utah is a resident that nests in the deep, sheer-walled, sandstone or rocky canyons of the Green and Colorado River basins. | None - There is 1997 MSO modeled habitat within the project area. However, field evaluation of this area showed the majority of this habitat to be very poor, not constituting real potential for MSO nesting. Consultation with FWS on 7/14/05 concurred with lack of suitable habitat. |
| Black-footed ferret <i>Mustela nigripes</i> | E | This mustelid is closely associated with its prey habitat, prairie dog colonies. | None - There are no prairie dog colonies of the appropriate size in the Project Area. |
| Mountain plover <i>Charadrius montanus</i> | SS | It nests on the ground and is commonly associated with open, barren, sometimes disturbed habitats. | None - A small breeding population of the species occurs on the Myton Bench, northwest of the Project Area. However, there is no appropriate habitat within the project area. |
| Yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i> | C | This species is associated with large patches of riparian woodlands. | Potential but not likely - The limited riparian habitat within the Project Area could support a nesting pair. |
| FISH | | | |
| Colorado pikeminnow <i>Ptychocheilus lucius</i> | E | Historically associated with the upper Colorado River Basin. | Potential - This fish species does not occur in the drainages associated with the Project Area. However, the project proponents are currently proposing to use up to 5 acre-feet of water per year from Evacuation Creek, which is located immediately east of the Project Area. |
| Humpback chub <i>Gila cypha</i> | E | Historically associated with the upper Colorado River Basin. | Potential - This fish species does not occur in the drainages associated with the Project Area. However, the project proponents are currently proposing to use up to 5 acre-feet of water per year from Evacuation Creek, which is located immediately east of the Project Area. |

Table 1.1 Federally Listed and BLM Special Status Species

| Species | Status | Habitat | Potential for and/or Occurrence |
|--|--------|--|--|
| Bonytail <i>Gila elegans</i> | E | Historically associated with the upper Colorado River Basin. | Potential - This fish species does not occur in the drainages associated with the Project Area. However, the project proponents are currently proposing to use up to 5 acre-feet of water per year from Evacuation Creek, which is located immediately east of the Project Area. |
| Razorback sucker <i>Xyrauchen texanus</i> | E | Historically associated with the upper Colorado River Basin. | Potential - This fish species does not occur in the drainages associated with the Project Area. However, the project proponents are currently proposing to use up to 5 acre-feet of water per year from Evacuation Creek, which is located immediately east of the Project Area. |

E = Endangered

T = Threatened

C = Candidate for federal listing

SS = BLM special status species

*Habitat information for all species from UDWR 2004.

2.0 CONSULTATION TO-DATE

The U.S. Fish and Wildlife Service (FWS) was contacted in 2003 and informed of the proposed project. The FWS responded with a letter, presently out of date, that listed all threatened and endangered species with potential to occur in Uintah County and noted concerns about raptors and habitat. The initial FWS letter initiating Section 7 consultation was more than 180 days old, so the BLM conducted informal consultation on 7/14/05. The FWS concurred with the BLM's determination of species that have potential to occur in the Project Area. These species are described in Table 1 (e-mail from Bob Specht, Vernal BLM to Diana Whittington, FWS, July 14, 2005).

2.1 CRITICAL HABITAT

Critical habitat has been designated in the 100-year floodplain of the Green River for the four endangered fish listed in this assessment: Colorado pikeminnow (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), bonytail (*Gila elegans*), and razorback sucker (*Xyrauchen texanus*). The White River floodplain, north of the Project Area, also is designated as critical habitat for the Colorado pikeminnow (FWS 1995b).

3.0 CURRENT MANAGEMENT DIRECTION

The Preferred alternative would take place within the Book Cliffs Resource Area, which is under the jurisdiction of the BLM, Vernal Field Office. The Book Cliffs Resource Area is managed via the Book Cliffs Resource Management Plan (RMP) approved in 1985. The primary management

objective of the Book Cliffs RMP is to lease land for oil and gas, tar sands, oil shale, and gilsonite development, while protecting or mitigating other resource values.

The proposed development of natural gas resources is in conformance with the Book Cliffs RMP (BLM 1985) and the 1988 *Environmental Assessment for Oil and Gas Leasing in the Book Cliffs Resource Area*.

4.0 DESCRIPTION OF THE PREFERRED ALTERNATIVE AND PROJECT AREA

The proponents for the project, consisting of Rosewood Resources, Inc., Houston Exploration, McElvain Oil & Gas Properties, Inc., and Dominion Exploration & Production, propose to develop hydrocarbon resources in the Atchee Wash Oil and Gas Production region of the Book Cliffs Resource Area. The Preferred alternative would involve not only BLM-administered public lands, but also State of Utah-administered lands and private lands.

4.1 PREFERRED ALTERNATIVE

Specifically, the Preferred alternative consists of the development of 423 natural gas wells, as well as access roads, support facilities, a transmission pipeline, and a compressor station, within the 79,914-acre Project Area. The Preferred alternative also involves the construction of pipelines for gathering gas and the gathering and disposal of produced water. The wells would be drilled on a spacing pattern based on geology and reservoir qualities; some areas may be developed on a 40-acre pattern, while others may be drilled on patterns of 160 acres or larger. It is anticipated that 40-acre well spacing would only be applied in areas of high natural gas production. In order to minimize surface disturbance, the existing road network would be used to the maximum extent practicable to access new wells. One 350-horsepower compressor is proposed, and gas-gathering lines would be integrated into the existing Kinder Morgan gas pipeline gathering and transmission network. The gas lines would consist of unpainted steel pipe 2 to 10 inches in diameter and would be laid on the ground surface, adjacent to access roads. Before being placed into service, all pipelines would be tested with pressurized fresh water or air (hydrostatic testing) to locate any leaks. After completion of hydrostatic testing, the tested wastewater would be hauled to an EPA-approved disposal facility.

The locations of many proposed wells and roads could be moved or have timing restrictions implemented under the Preferred alternative. Approximately 73 wells and associated roads could be relocated to use existing vegetative and topographic screening within the view-shed of the Goblin City Overlook. Five proposed well locations could be affected by surface restrictions near important wildlife watering areas. Approximately 24 wells proposed near raptor nests could be affected by moving or timing restrictions. Timing and moving restrictions for sage grouse and burrowing owl habitat could affect six wells. Approximately 44 wells could be located in crucial deer winter range and be affected by timing restrictions. Finally, even though there are no wells proposed on slopes in excess of 40 percent, there may be roads proposed on slope grades up to 40 percent in order to access ridge top well locations. These soils restrictions could affect approximately 4,150 acres of the RDG Project Area. Note that there is some overlap in these environmental protection restrictions. See Map 2-1 for a depiction of this alternative.

4.2 PROJECT AREA

The Project Area is in the Eastern Tavaputs Plateau portion of the Uinta Basin. The climate of this portion of the Uinta Basin is arid to semi-arid, and elevations range from approximately 5,575 feet to 6,560 feet. The Project Area is located within the watershed of the White River sub-unit, which consists of the White River Drainage and Evacuation Creek. Bitter Creek is the primary stream within the Project Area. Intermittent and/or ephemeral drainages that are within the Project Area include Asphalt Wash, Atchees Wash, and Saddletree Draw. There are no perennial streams within the Project Area, as Bitter Creek is considered intermittent under State of Utah's water quality classification system.

The areas considered for natural gas extraction are in the Wasatch and Mesa Verde Formations, which are the primary producing horizons in this area, but wells could also be drilled in the Dakota and Weber sandstones.

Five vegetation communities exist within the 79,914-acre Project Area: desert shrub, badland-rock outcrop, sagebrush, pinyon-juniper, and riparian/wetland. Pinyon-juniper and sagebrush cover approximately 96% of the Project Area. The Project Area supports a variety of wildlife. Two species of big game, elk and mule deer, occur in the Project Area. Various species of raptors, songbirds, neotropical migratory birds, upland game species, and reptiles and amphibians inhabit the area as well. Plant and wildlife species that have special-status designation (e.g., threatened, endangered, or sensitive) and that may occur in the area are the subject of this assessment.

5.0 PROPOSED CONSERVATION/MINIMIZATION MEASURES

5.1 WATER RESOURCES

- Blasting for well locations or geophysical operations within .25 mi of a spring or water well would be avoided.
- Important watering locations, such as guzzlers and free-flowing water wells, would be protected by restricting surface disturbing activities within .25 mi of these locations.

5.2 SOILS/RIPARIAN

- There would be no new surface disturbing activities on slopes greater than 40 percent, which involves approximately 4,151 acres within the RDG Project Area (see Map 2-4). There may be roads proposed on slope grades up to 40 percent in order to access ridge top well locations. Avoid, to the fullest extent possible, road construction on slopes between 40% and 60%. If it is not feasible to avoid these slopes, then the applicant should provide to the Authorizing Officer (AO) an erosion control plan, a road maintenance plan, and an engineered drawing of the proposed road. Approval from the AO would be required for all proposed roads traversing slopes between 40% and 60%.
- Avoid well pad construction on slopes greater than 25% to reduce slope failure and scarring.

- There would be no surface-disturbing activities in delineated riparian areas (see Map 2-5).
- All roads should be constructed to Gold Book Standards (*Surface Operating Standards for Oil and Gas Exploration and Development*; BLM and Forest Service publication, 1989).
- Well pads shall not be located within active drainages.
- Well pad development in designated 100-year floodplains shall comply with Executive Order 11988.
- All wells placed on the terrace adjacent to the active drainage of designated 100-year floodplains should have a closed system.
- To the fullest extent possible, access roads proposed in valley/drainage bottoms should be sited on the toe of the adjacent slope to the valley bottom. Roads should have appropriate energy dissipaters where water leaves the road and is routed towards an adjacent drainage.
- Well pads adjacent to drainages should be bermed to prevent runoff from entering the drainage.
- As conditions dictate, diversion ditches should be constructed around the pad as determined by the AO.
- Where diversion ditches are constructed to reroute drainages around well pads, the ditches should be designed to return the diverted water back to the original channel. If it is not feasible to return diverted water back to its original channel, then the water should be diverted to the nearest channel, with energy dissipating devices installed to prevent channel degradation.

5.3 VEGETATION

- Noxious weed infestations within 100 ft of disturbed areas associated with proposed wells, well facilities, roads, or ROWs constructed or improved for this project would be treated and controlled by RDG. Weed treatment would be specified by the BLM.
- Surface disturbance in special-status plant habitats would be avoided. Site-specific evaluations by the BLM or Section 7 Endangered Species Act consultation with the USFWS may allow for modifications to this requirement.
- Prior to approval and issuance of any right-of-way, lease, or permit, site-specific surveys for federally listed plants would be conducted. Surveys would be conducted at an appropriate time of year to ensure detection and prevention of adverse effects.
- Abandoned well pads, roads and pipeline routes will be reseeded with native vegetation (in consultation with the BLM) following completion of the drilling operation.

5.4 WILDLIFE

DEER

- To protect wintering mule deer, no surface disturbing, drilling, or completion activities would be allowed from November 15 through April 15 on BLM administered lands

identified in the Book Cliffs RMP EIS as crucial deer winter range (BLM 1985) Exceptions to this limitation in any year shall be requested in writing and directed to the BLM AO. This mitigation restriction would not apply to the maintenance and operation of producing wells. The number of actual visits by personnel needed to monitor well operations during this period would be minimized.

- Offsite mitigation or enhancement of 1.5 acres for every acre of surface disturbance within browse habitat (i.e., sagebrush, four-wing saltbush, winterfat, etc.) within the crucial winter range would be required.

SAGE GROUSE

- No surface-disturbing activities would be allowed within 1000 ft of sage grouse strutting grounds (BLM 1994).
- No surface-disturbing activities would be allowed within 2 mi of active sage grouse strutting grounds during the breeding and nesting period (between March 1 and June 30) (BLM 1994).
- These timing and distance restrictions would also be applied to workover rigs. This restriction would not apply if sage grouse were not present (BLM 1994).
- No powerlines or electrical transmission lines that provide perch sites for raptors would be built within 2 mi (3 km) of sage grouse habitat. Transmission lines would either be buried or power poles modified to prevent their use as raptor perches (Connelly et al. 2000).

RAPTORS

- No surface occupancy would be allowed within the recommended nesting constraint distances (see Table 2-5 below) unless proposed activities are topographically concealed from the nest, or unless artificial nesting structures (ANSs) are constructed. If ANS mitigation were used, raptor ANSs would be constructed to allow raptors to switch from natural nesting sites to artificial ones. The ANSs should be in place at least two years prior to any development occurring within 1/4 mi of a natural nest to allow the raptors the opportunity to accept or reject the new structure.
- Nesting raptors would be protected by restricting construction and ground-disturbing activities year-round within 1/2 mi of golden eagle nests that have been active within the past two years. A site-specific analysis will be completed to determine if terrain features adequately protect the nest site from proposed ground-disturbing activity.
- Construction and ground-disturbing activity would be restricted year-round within 1/2 mi of ferruginous hawk and bald eagle nests. A site-specific analysis would be completed to determine if terrain features adequately protect the nest site from proposed ground-disturbing activity.
- Construction and ground-disturbing activity would be restricted year-round within one 1 mi of known peregrine falcon nests (BLM 1994).
- No surface disturbing activities would be allowed within 1/2 mi of active burrowing owl nests between April 1 and July 15 (see Table 5.1 below).
- The above spatial and timing restrictions would not apply if impacts could be mitigated

through other management actions. A site-specific analysis would be completed to determine if terrain and/or topographical features could adequately protect the nest site from proposed ground-disturbing activity (BLM 1994). These timing and distance restrictions would also be applied to workover rigs.

- To protect other raptor species nest sites, no ground-disturbing activity would be allowed within 1/2 mi of an active nest during the specified timing constraints shown in Table 5.1.

Table 5.1 Active Raptor Nest Distance and Timing Constraints

| Species | Distance from Active Nest (mi) | Timing Constraints |
|--------------------|---------------------------------------|---------------------------|
| Burrowing Owl | 0.5 | April 1 – July 15 |
| Swainson's Hawk | 0.5 | April 1 – July 15 |
| Northern Goshawk | 0.5 | April 15 – August 20 |
| Short-eared Owl | 0.5 | April 10 – June 15 |
| Prairie Falcon | 0.5 | April 1 – July 15 |
| Merlin | 0.5 | April 15 – June 25 |
| American Kestrel | 0.5 | May 1 – June 30 |
| Turkey Vulture | 0.5 | May 15 – August 15 |
| Cooper's Hawk | 0.5 | May 1 – August 15 |
| Sharp-shinned Hawk | 0.5 | June 20 – August 15 |
| Northern Harrier | 0.5 | April 1 – July 15 |
| Red-tailed Hawk | 0.5 | April 1 – July 15 |
| Great-horned Owl | 0.5 | February 1 – May 15 |
| Long-eared Owl | 0.5 | March 15 – June 15 |

* NSO – No Surface Occupancy.

Source: BLM 1994.

6.0 ACTION AREA

This biological assessment addresses the potential effects of implementing natural gas development within the Project Area. The locations of wells, access roads, pipelines, and associated support facilities depicted and described in the biological assessment represent a maximum level of development and tentative locations. The final location of each component of this development would be determined through future site-specific analyses, including site-specific BAs, which would be required for each facility. These analyses would occur when applications, such as Applications for Permit to Drill (APDs), or BLM right-of-way (ROW) Grants, were filed by proponents for each project component.

6.1 SPECIES ACCOUNTS AND STATUS IN THE ACTION AREA

6.1.1 PLANTS

Graham Beardtongue

This species is found on semi-barren knolls, ridges, and steep slopes. Individuals require a mix of fragmented white shale and silty clay soils of the Green River Formation. This species is typically associated with sparsely vegetated communities of pinyon-juniper, desert shrub, and Salina wild rye, at elevations ranging from 4,691 feet to 6,758 feet. The range of the Graham beardtongue in and around the Book Cliffs Resource Area comprises an arc of small, disjunct populations. The arc begins in the vicinity of Raven Ridge, near the White River in Rio Blanco County, Colorado and continues westward across the southern part of Uintah County, Utah to the vicinity of Sand Wash near the Green River; a distance of about 70 miles. Total population size is estimated to be between 5,500 and 7,000 individuals. Numbers of plants within given populations appears to be quite variable. One site occurs each in Carbon and Duchesne Counties; 29 sites are found in Uintah County (FWS 2004a). This species is known to occur in the Asphalt Wash and Bitter Creek portions of the Project Area. Potential habitat occurs in the grey shale outcrops of the Green River Formation in the project area. Three populations occur within the project area, two on BLM and one on State lands.

Graham's beardtongue currently is candidate species but since the initiation of this project the U.S. Fish and Wildlife Service has prepared a listing package to list this species as threatened. For purposes of this BA the species will be consulted on as listed as threatened to eliminate the need to re-consult on this project when the species becomes listed.

White River Beardtongue

This species is found on semi-barren areas on white (infrequently red) soils that are xeric, shallow, fine-textured, and usually mixed with fragmented shale. It is associated with pinyon-juniper/desert shrub and mixed desert shrub communities, at elevations ranging from 5,000 feet to 6,679 feet. The White River beardtongue is found in Duchesne and Uintah Counties in Utah and in adjacent Rio Blanco County in Colorado, with approximately 95% of the population occurring in Utah (UDWR 2004). This species' range follows an arc of calcareous soils from Raven Ridge near the White River in Rio Blanco County, Colorado, westward into southern Uintah County, Utah, to Evacuation Creek. The species' range covers approximately 20 miles (30 km) and is estimated to include approximately 20,000 individual plants (FWS 2003b). The white (infrequently red) soils that are xeric, shallow, fine-textured, and usually mixed with fragmented shale required for this species occur within the Project Area within the Green River Formation.

6.1.2 WILDLIFE

Bald Eagle

Bald eagles are listed as threatened in the lower 48 states and are protected under the Endangered Species Act (ESA) and the Bald Eagle Protection Act of 1940 (USFWS 2003). The breeding range for bald eagles extends south from the arctic tundra in Alaska and Canada through the

contiguous United States and Baja California. During winter, eagles generally move south to find open water and food (UDWR 2002a).

Migrant bald eagles winter throughout Utah, often near open water and riparian corridors, but foraging may extend into more upland habitats. Another important habitat component for wintering eagles includes the presence of suitable trees for diurnal perching and nocturnal roosting (Terres 1991; FWS 1986). Bald eagle presence in the Project Area is fairly common during the winter months (November–March) and includes foraging by migrants and wintering individuals (USDA 2003b). No open water or prominent riparian areas are present to attract concentrations of wintering eagles, although individuals may use the Bitter Creek drainage for sporadic foraging opportunities. Bald eagles are known to utilize the bottomlands along the White River, directly north of the Project Area, where they use the cottonwoods for nocturnal roosts and forage along the river for waterfowl, carrion, and small mammals (UDWR 2002a).

Western Yellow-billed Cuckoo

Historically, the range of the western yellow-billed cuckoo included all states west of the Rocky Mountains and extended into southern British Columbia at the northern extent and into the northwestern states of Mexico at the southern limit. Currently, the range of the cuckoo is limited to fragments of riparian habitats from northern Utah, western Colorado, southwestern Wyoming, and southeastern Idaho southward into northwestern Mexico and westward into southern Nevada and California. Cuckoos are long-range migrants that winter in northern South America in tropical deciduous and evergreen forests (UDWR 2002b). They are obligate riparian nesters, meaning they are restricted to more mesic wooded habitat along rivers, streams, and other wetlands. Other habitats used include mixed native associations (cottonwood, willow, ash, mesquite, sycamore, walnut), mixed native and introduced associations (any of the previous species with less than 75% tamarisk), mesquite bosque, associations with more than 75% tamarisk, and even fruit orchards adjacent to rivers (i.e., artificial riparian habitat) (Johnson et al. 1987, Laymon 1998). Western yellow-billed cuckoos feed on insects including caterpillars and grasshoppers (UDWR 2002a).

Although it is unlikely that the limited riparian habitat could support a nesting pair, potentially suitable migration habitat exists in riparian areas along the Bitter Creek drainage. Several individuals and pairs were found outside the project area in cottonwood habitat along the Green River during breeding surveys conducted in 2000 (Howe and Hanberg 2000). Similar breeding habitat likely occurs north of the Project Area along the White River, but no such habitat occurs within the Project Area itself.

6.1.3 FISH

Bonytail

The bonytail is a rare minnow species native to the Colorado River system of the western United States and northern Mexico. The distribution and numbers of the bonytail have declined and few bonytail still exist in the wild. The near extinction of the bonytail is attributed to alteration of natural flow regimes, habitat loss/alteration, and competition with/predation by exotic fishes. Bonytail are now federally and state listed as endangered, and efforts to re-establish the species

are underway (UDWR 2002b). The bonytail is opportunistic feeders, eating insects, zooplankton, algae, and plant matter. Its preferred habitat includes eddies, pools, and backwaters near swift current in large rivers. Many bonytail are now produced in fish hatcheries, with the offspring released into the wild when they are large enough to survive in the altered Colorado River system environment (USFWS 2002b, UDWR 2002b).

The bonytail is historically and currently known from the Green River, which is located along the eastern edge of the project area. Specifically, the bonytail has recently been found in Coal Creek Rapid, at the confluence of the Yampa and Green Rivers on the Utah-Colorado border, in Dinosaur National Monument, in Desolation/Gray Canyon, including Coal Creek, and at the confluence of the Green and Colorado Rivers (USFWS 2002c). The species population size has been difficult to measure. In recent years, a total of 100 individuals have been identified in the abovementioned locations (USFWS 2002c). A Recovery Plan was completed for this species in 1990 and revised in 2002 (USFWS 1990b, USFWS 2002c). In addition, the BLM is party to the Lower Colorado River Multi-Species Conservation Program (MSCP), a Cooperative Agreement with other federal agencies, water users, energy distributors, and environmental groups to recover the bonytail and other fish in the upper Colorado River Basin (USDI 1987). This agreement includes provisions for instream flow protection, habitat restoration, the reduction of nonnative fish species, research, monitoring, and management (USFWS 2002c).

Colorado Pikeminnow

The Colorado pikeminnow (formerly known as the Colorado squawfish) is a large minnow native to the Colorado River system of the western United States and Mexico. The current range of the Colorado pikeminnow has been reduced due to flow regulation, habitat loss, migration barriers (such as dams), and the introduction of nonnative fishes. The species now exists only in the upper Colorado River system. The Colorado pikeminnow is both Federally and State listed as endangered (UDWR 2002b). Adult Colorado pikeminnows prefer medium to large rivers, where they can be found in habitats ranging from deep turbid rapids to flooded lowlands. Slow-moving backwaters serve as nursery areas for young pikeminnows. The Colorado pikeminnow is primarily piscivorous, but smaller individuals will also feed on insects and other invertebrates (UDWR 2002b).

The Colorado pikeminnow is endemic to the Colorado River Basin. Reproductive populations exist in the Green River, the lower Duchesne River, and the lower White River (USFWS 2002d). Information regarding the estimated population size of Colorado pikeminnow in the Green River was not available in the literature; however, USFWS (2002d) reported a threefold increase in catch rates (number of adult pikeminnow per hour of electro fishing) between 1988 and 1997. In addition, they report that the condition of pikeminnow declined between these two sampling periods, suggesting that the population could be near carrying capacity in that area. A Recovery Plan for the Colorado pikeminnow was completed in 1991 and revised in 2002 (USFWS 2002d, USFWS 1991). In addition, the BLM is party to the Upper Colorado River Endangered Fish Recovery Program (UCRRP), a Cooperative Agreement with other federal agencies, water users, energy distributors, and environmental groups to recover the Colorado pikeminnow and other fish in the Upper Colorado River Basin (USDI 1987). This agreement includes provisions for instream flow protection, habitat restoration, reduction of nonnative fish species, research, monitoring, and management (USFWS 2002d).

Humpback Chub

The humpback chub is a rare minnow native to the upper Colorado River system. Humpback chub originally used fast, deep, white-water areas of the Colorado River and its major tributaries. Alterations of flow regimes have changed the turbidity, volume, current speed, and temperature of the water in those rivers, reducing the distribution and numbers of this species. In Utah, humpback chub are now confined to a few white-water areas in the Colorado, Green, and White Rivers. Because of the severe declines in humpback chub numbers and distribution, the species is both Federally and State listed as endangered (UDWR 2002b). The humpback chub primarily feeds on insects and other invertebrates. Occasionally they will consume algae and other fishes (UDWR 2002b).

The humpback chub is endemic to warm water river systems in the Colorado River Basin. It is found in Desolation Canyon of the Green River, just southeast of the GRPA. Approximately 1,500 individuals are thought to exist in that population (USFWS 2002e). A Recovery Plan was completed for this species in 1990 and amended in 2002 (USFWS 1990c, USFWS 2002e). In addition, the BLM is party to the UCRRP, a Cooperative Agreement with other federal agencies, water users, energy distributors, and environmental groups to recover the humpback chub and other fishes in the Upper Colorado River Basin (USDI 1987). This agreement includes provisions for instream flow protection, habitat restoration, reduction of nonnative fish species, research, monitoring, and management (USFWS 2002e).

Razorback Sucker

The razorback sucker is a Federally and State listed endangered fish native to the Colorado River system. Razorback sucker habitat and populations have been greatly impacted by humans. The species is now extremely rare in Utah and throughout its range. Major impacts to the razorback sucker include impoundments of rivers in the Colorado River system and competition and predation from nonnative fish species (UDWR 2002b). Adult razorback suckers prefer warm water rivers and are typically associated with deep runs, eddies, backwaters, and off-channel areas in spring; shallow runs and pools associated with sandbars in summer; and slow runs, pools, and eddies in winter. Razorback suckers are known to exhibit seasonal migrations and long-distance movements to use optimal habitat (USFWS 1998a, 2002a). The razorback sucker primarily consumes algae, zooplankton, and other aquatic invertebrates.

The razorback sucker is found in warm water reaches of rivers in the Colorado River Basin, including the Green River, White River, and lower Duchesne River. The species population in the middle Green River is estimated at approximately 100 individuals. Populations in the White River are small and their distributions are limited by the Taylor Draw Dam. Razorback sucker are found in small aggregations at the mouth of the Duchesne River during spring runoff (USFWS 2002a). A Recovery Plan for this species was completed in 1998 and amended in 2002 (USFWS 1998b, USFWS 2002a). In addition, the BLM is party to the UCRRP, a Cooperative Agreement with other federal and state agencies, water users, energy distributors, and environmental groups to recover the razorback sucker and other fish in the Upper Colorado River Basin (USDI 1987). This agreement includes provisions for the protection of in-stream flow, habitat restoration, reduction of impacts by nonnative fish species, research, and monitoring (USFWS 2002a).

7.0 EFFECTS

7.1 PLANTS

GRAHAM BEARDTONGUE AND WHITE RIVER BEARDTONGUE

Both species occupy shale habitats within the Green River Formation. Populations seem to prefer different layers of the formation and in some areas grow as separate bands adjacent to each other. Direct and indirect effects are the same for both species. The Preferred Alternative is anticipated to have direct, indirect, interdependent and interrelated effects on this species and its potentially suitable habitat. Both beardtongues are candidate species, but since the initiation of this project the U.S. Fish and Wildlife Service has prepared a listing package to list Graham's beardtongue as threatened due to oil and gas and oil shale activities. For purposes of this BA, the effects of the preferred alternative to Graham's beardtongue will be consulted on as if plant has been listed as threatened, to eliminate the need to re-consult with the U.S. Fish and Wildlife Service on this project when the species becomes listed.

Direct effects could include destruction of occupied habitat, potentially suitable habitat and individual plants during construction activities and normal well operations. Construction activities of well pad and road construction and pipeline delivery systems have the potential to directly eliminate populations, individual plants and habitat, if project construction sites occur on habitat. Under the preferred alternative plant surveys will be conducted for this species prior to implementation of specific well, road and pipeline construction. Populations and suitable habitat will be avoided. This will eliminate direct loss of both plants and habitat through construction activities as well as fragmentation of individual populations.

Indirect effects could include the introduction and incidental spread of exotic and noxious weeds during the installation of mineral development infrastructure and roads, and habitat alteration associated with changes in surface water flows and sedimentation associated with project related construction activities. Construction activities could make individual populations more susceptible to weeds, sedimentation and erosion, as well as increase the natural isolation of populations on the landscape due to roads, by decreasing the area biodiversity with weeds. Changes in plant biodiversity can also change insect diversity and effect pollinators in a given area. Population of Graham's beardtongue are currently isolated by landscape and occurrence of suitable habitat. Considerable color variation has been found among populations of Graham beardtongue (Schultz and Mutz 1979). With the disjunctive occurrence of populations across the Green River Formation it is possible that there is genetic variation among the populations due to the isolation by distance as well as the potential inability of this species to colonize new areas. Loss of populations could result in the loss of a genetic strain within the species. Invasive weed species, especially cheatgrass provide direct competition to other species, both spatially and for soil moisture. Once the seed bank is lost for Graham's beardtongue, recruitment from another population of seed would be unlikely.

The RDG area currently has a low density of cheatgrass throughout the project area. Disturbed sites such as roads and well pads do have an increased density of annual species. Cheatgrass has rapid seed germination with most seedlings emerging in 4-6 days, and many of the seedlings survived dry periods of up to 10 days (Thill et al. 1984). Cheatgrass is an efficient user of soil

water at shallow depths but is inefficient at exploiting deeper soil water (Cline et al. 1977). In addition cheatgrass is able to produce root growth and germination at lower temperatures than native perennial species. This all gives this species a competitive edge. On the Buck Canyon populations cheatgrass and other invasive species occurred along roadways and into the native sagebrush communities but was a minor component in the shale associated with Graham beardtongue habitat. The same was found on the White River beardtongue population along the White River. With increased disturbance and densities of invasive species seed, competition and invasion of habitat could increase in the RDG project area. Initiation of Operators committed measures for control of weeds and seeding with native plant species of disturbed areas on pads and roads will lessen the density of invasive and noxious weed and seed potential for these species for invasion into habitat areas.

Placement of roads, buried pipelines and well pads down slope of populations, or suitable habitat, will eliminate effects of sedimentation and changes of water flow. Roads above the populations and suitable habitat will change the water flow patterns that can lead to sedimentation and/or erosion. Construction can indirectly impact or change habitat through changes in overland flow of water into habitat areas causing erosion of habitat or increased sedimentation through deposition that changes the habitat. This can result in the long term loss of plants and habitat, and/or decrease the plants ability to maintain a population by recruitment of new plants by seedlings, due to the loss of the preferred seedbed in the shale or loss of the shale interspaces due to sedimentation. Seedlings were found in the shale litter near mature Graham beardtongue plants, and out of the thousands of seedlings present, only a few survived (Shultz and Mutz 1979). The shale appears to provide microclimates that would provide heat protection for new seedlings as well as prevent excessive moisture loss by wind and sun. Loss of the shale through erosion or other disturbing activities, such as off road vehicle travel, could eliminate suitable seedling habitat while not destroying individual mature plants. In addition the shale micro climates can additionally be altered by deposition of sediments that not only fill in the micro-spaces within the shale but also can alter the surface soil chemistry, both of which can reduce the potential of seedling success to survive, and eventually cause the loss of a population site. If construction is designed to be down slope from habitat and populations, the current overland flow of water would be maintained, and eliminate the potential from oil and gas development contributing to increased erosion and sedimentation above what naturally occurs in habitat. Where construction of roads and pads due to landscape constraints or other resource issues such as archeology sites need to be upslope of habitat, initiation of best management practices of onsite buffers utilizing the landscape, and engineered road and pad design and construction measures would eliminate concentrated water flows and increased sediment into habitats.

Interdependent effects include increased opportunity for habitat destruction, compaction, and noxious weed seed dispersal associated with OHV traffic on the 127 miles of new roads proposed for construction within the project area. Currently OHV use in the area is low and limited to fall and winter use by hunters. Franklin, (1995) did find some motorcycle tracks on one population of White River beardtongue. There is potential for use in this area to increase, but may be a result of the expanding OHV use from traditional use areas near communities and not necessarily development of more roads in the area.. The remoteness of the area would lower the potential of recreational OHV activities which is the biggest contributor to resource damage in urban interface areas. What the changes in use of the area will be with development is unknown. Monitoring OHV use

in the area and utilizing mitigation measures of signing and closing access to sensitive habitat areas have proven successful in the Inland Oil and Gas field development in protecting sensitive areas.

7.2 WILDLIFE

BALD EAGLE

Direct effects on Bald Eagles include collisions with vehicles. Wintering bald eagles feed on carrion; therefore, the potential exists for birds feeding along roads within the Project Area to be involved in vehicle collisions. Because development activities could temporarily displace eagles from winter foraging areas, indirect effects would include avoidance of areas of intense human activity throughout the year. The interrelated effects of the Preferred alternative and the numerous existing and proposed oil and gas developments in the Diamond Mountain and Book Cliffs Planning Areas could lead to a reduction in prey availability because of a major increase in road densities and the installation of oil and gas drilling infrastructure, which would compound the indirect effects discussed above.

WESTERN YELLOW-BILLED CUCKOO

Potentially suitable habitat for the Western Yellow-Billed Cuckoo occurs to a limited extent along Bitter Creek. However, because no development activities would occur along Bitter Creek, impacts to the species, if present, would be indirect. Oil and gas development could result in increased habitat fragmentation, habitat deterioration, disruption and alteration of seasonal migration routes, and disruption of behavior due to the construction and operation of roads, pipelines, well pads, compressor stations, powerlines, and fences. The interrelated effects of the Preferred alternative and the numerous existing and proposed oil and gas developments in the Diamond Mountain and Book Cliffs Planning Areas could lead to a reduction in prey availability because of a major increase in road densities and the installation of oil and gas drilling infrastructure, which would compound the indirect effects discussed above.

7.3 FISH

COLORADO PIKEMINNOW

This species does not occur in the drainages within the Project Area. However, the project proponents are currently proposing to use up to 5 acre-feet of water per year from Evacuation Creek, which is located immediately east of the Project Area. Evacuation Creek is an intermittent tributary to the White River, which joins the Green River approximately 20 miles northwest of the Project Area. This water withdrawal could have indirect effects on individuals and their habitat in and downstream of the Project Area.

HUMPBACK CHUB

This species does not occur in the drainages within the Project Area. However, the project proponents are currently proposing to use up to 5 acre-feet of water per year from Evacuation

Creek, which is located immediately east of the Project Area. Evacuation Creek is an intermittent tributary to the White River, which joins the Green River approximately 20 miles northwest of the Project Area. This water withdrawal could have indirect effects on individuals and their habitat in and downstream of the Project Area.

BONYTAIL

This species does not occur in the drainages within the Project Area. However, the project proponents are currently proposing to use up to 5 acre-feet of water per year from Evacuation Creek, which is located immediately east of the Project Area. Evacuation Creek is an intermittent tributary to the White River, which joins the Green River approximately 20 miles northwest of the Project Area. This water withdrawal could have indirect effects on individuals and their habitat in and downstream of the Project Area.

RAZORBACK SUCKER

This species does not occur in the drainages within the Project Area. However, the project proponents are currently proposing to use up to 5 acre-feet of water per year from Evacuation Creek, which is located immediately east of the Project Area. Evacuation Creek is an intermittent tributary to the White River, which joins the Green River approximately 20 miles northwest of the Project Area. This water withdrawal could have indirect effects on individuals and their habitat in and downstream of the Project Area.

8.0 CUMULATIVE EFFECTS

Oil and gas development is, has been, and will likely continue to be a prominent use of the Book Cliffs Resource Area. Most of the present surface disturbance and human activity levels are associated with oil and gas development. The cumulative effects of the Preferred alternative, in conjunction with past, present, and reasonably foreseeable future actions, would affect TES species wherever the Preferred alternative's impacts are not completely mitigated.

All actions authorized by the federal government must comply with the ESA of 1973, as amended. The ESA defines cumulative effects (50 CFR 402.2) as the additive effects of future state and private activities that are reasonably certain to occur in the project area considered in this BA.

Additional effects to federally listed species could occur on state and private land in and around the Project Area. Private and state land could be developed for housing, grazing operations, oil and gas drilling or mining. Other activities associated with state and private actions within the Project Area that could affect sensitive species include a potential increase in OHV use, biking and hiking, and hunting. Exploration for and development of oil and gas resources could affect the federally listed species that occur in the area by further reducing population numbers and availability of potentially suitable habitat through habitat reduction, prey reduction, habitat fragmentation, and harassment associated with increased human activity (operations) and public access.. Water withdraws associated with development would further reduce the amount and quality of endangered fish habitat in the Green and Duchesne Rivers. The increase in human traffic associated with hiking, hunting, etc., could lead to harassment of individual wildlife

species, trampling of plant species and an increase in the spread of noxious weed and undesirable plant species.

9.0 CONCLUSIONS AND DETERMINATIONS

9.1 THREATENED AND ENDANGERED SPECIES

BALD EAGLE

Because wintering bald eagles feed on carrion, which often takes the form of road kill, birds feeding along roadsides have the potential to be involved in vehicle collisions. Additionally, since bald eagles tend to avoid areas of intense human activity during all times of year, development activities could temporarily displace eagles from winter foraging areas. However, because bald eagles are only known sporadically in the project area, these effects are insignificant. The Preferred alternative **may affect, not likely to adversely affect** the bald eagle.

COLORADO PIKEMINNOW

Project proponents are proposing to use up to 5 acre-feet of surface water per year from Evacuation Creek for drilling purposes. This withdrawal from Evacuation Creek would result in a new water depletion from the upper Colorado River Basin and therefore **may affect, is likely to adversely affect** the Colorado pikeminnow by virtue of this depletion.

HUMPBACK CHUB

Project proponents are proposing to use up to 5 acre-feet of surface water per year from Evacuation Creek for drilling purposes. This withdrawal from Evacuation Creek would result in a new water depletion from the upper Colorado River Basin and therefore **may affect, is likely to adversely affect** the Humpback chub by virtue of this depletion.

BONYTAIL

Project proponents are proposing to use up to 5 acre-feet of surface water per year from Evacuation Creek for drilling purposes. This withdrawal from Evacuation Creek would result in a new water depletion from the upper Colorado River Basin and therefore **may affect, is likely to adversely affect** the bonytail by virtue of this depletion.

RAZORBACK SUCKER

Project proponents are proposing to use up to 5 acre-feet of surface water per year from Evacuation Creek for drilling purposes. This withdrawal from Evacuation Creek would result in a new water depletion from the upper Colorado River Basin and therefore **may affect, is likely to adversely affect** the razorback sucker by virtue of this depletion.

9.2 FEDERAL CANDIDATE SPECIES AND BLM SENSITIVE SPECIES

GRAHAM BEARDTONGUE

Plant surveys will be conducted for this species prior to implementation of specific well construction projects. Populations and suitable habitat will be avoided, but the surface disturbance associated with the Preferred Alternative may indirectly affect potentially suitable habitat and individual plants of this species. Initiation of Operators committed measures, mitigation measures and best management practices, will lessen the potential for erosion, loss of habitat, noxious weed and undesirable plant establishment, and increased sedimentation in suitable habitat. The implementation of the Preferred Alternative with Operators committed measures and mitigation measures **may affect but not likely to adversely affect Graham's beardtongue or its habitat.**

WHITE RIVER BEARDTONGUE

Plant surveys will be conducted for this species prior to implementation of specific well construction projects. Populations and suitable habitat will be avoided, but the surface disturbance associated with the Preferred Alternative may indirectly affect potentially suitable habitat and individual plants of this species. Initiation of Operators committed measures, mitigation measures and best management practices, will lessen the potential for erosion, loss of habitat, noxious weed and undesirable plant establishment, and increased sedimentation in suitable habitat. The implementation of the Preferred Alternative with Operators committed measures and mitigation measures, **may impact, but is not likely to contribute to the need for the White River beardtongue to become listed.**

WESTERN YELLOW-BILLED CUCKOO

There is limited potentially suitable nesting habitat for this species along Bitter Creek, but no known individuals. No development activities would occur along Bitter Creek; therefore, any potential effects on the species would be indirect. The Preferred alternative **may affect, but is not likely adversely affect the western yellow-billed cuckoo or its habitat** because of discountable, indirect effects.

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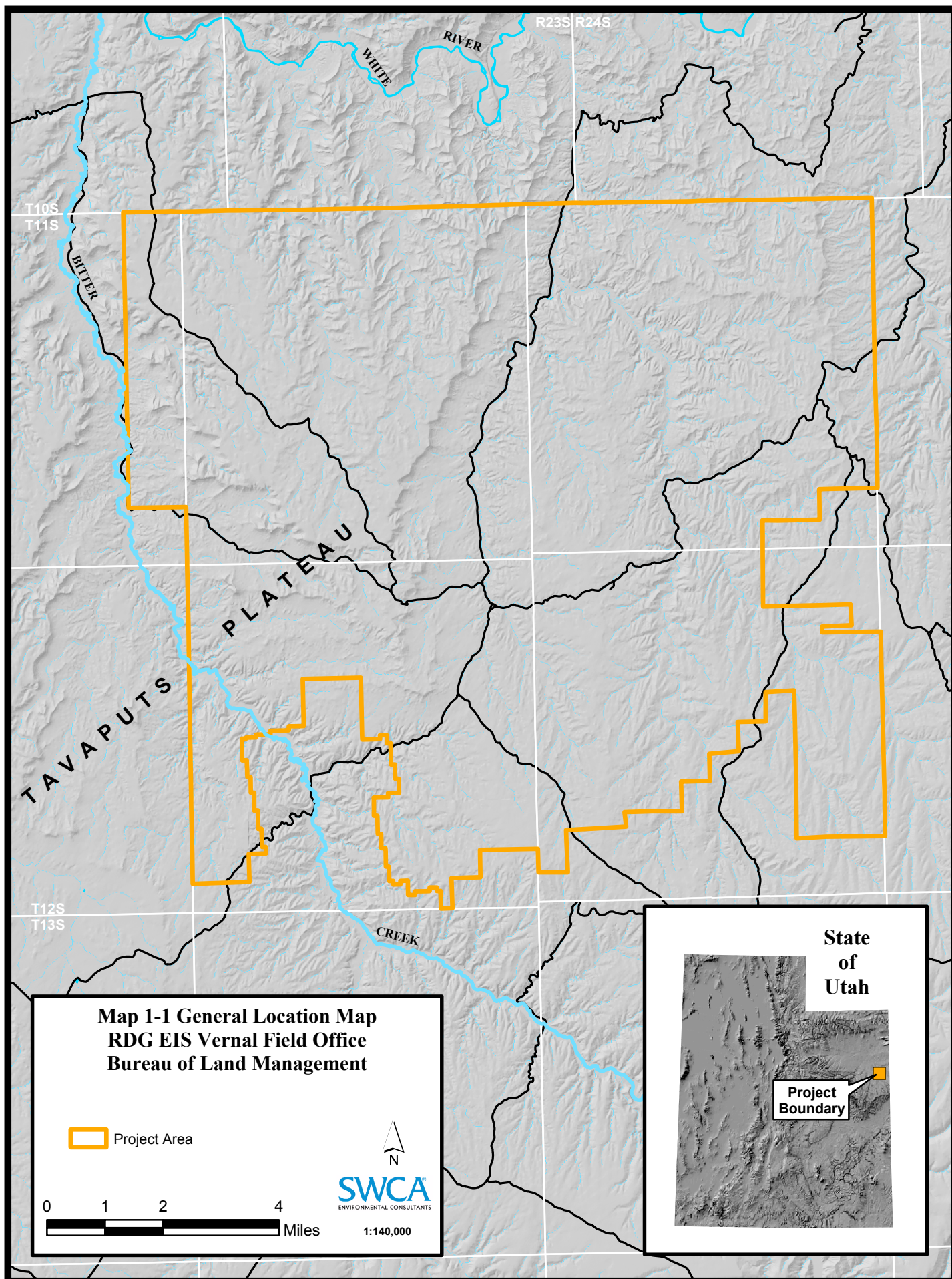
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Utah Division of Wildlife Resources

12. MAPS

Map 1 – Proposed RDG Project General Location

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